Supporting Information

Spiropyran-induced One-dimensional Cyclodextrin Microcrystals with Light-driven Fluorescence Change

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Scheme S1. Synthesis of compound 4 (SP-COOH).
Fig. S1 $^1$H NMR spectrum of compound 3.

$^1$H NMR (400 MHz, DMSO) $\delta$ 12.21 (s, 1H), 8.22 (d, $J = 2.8$ Hz, 1H), 8.01 (dd, $J = 9.0$, 2.8 Hz, 1H), 7.22 (d, $J = 10.4$ Hz, 1H), 7.14 (t, $J = 6.5$ Hz, 2H), 6.88 (d, $J = 9.0$ Hz, 1H), 6.81 (t, $J = 7.4$ Hz, 1H), 6.67 (d, $J = 8.1$ Hz, 1H), 6.01 (d, $J = 10.4$ Hz, 1H), 3.35 (d, $J = 12.9$ Hz, 3H), 2.58 (dt, $J = 14.8$, 7.3 Hz, 1H), 2.49 – 2.41 (m, 1H), 1.20 (s, 3H), 1.08 (s, 3H).

Fig. S2 $^1$H NMR spectrum of SP-COOH.
Fig. S3 $^{13}$C NMR spectrum of SP-COOH.

$^{13}$C NMR (101 MHz, DMSO) $\delta$ 172.87, 159.10, 146.17, 140.51, 135.71, 128.06, 127.55, 125.69, 122.63, 121.75, 119.30, 118.69, 115.47, 106.47, 52.59, 32.94, 25.56, 19.13.

Fig. S4 SEM of SP-COOH@γCD film.
Fig. S5 $^1$H NMR spectrum of SP-COOH@γCD.

Fig. S6 ESI-MS of SP-COOH/βCD powder, only SP-COOH can be found. (Note: the condition used for SP-COOH@γCD is the same as that used for SP-COOH/βCD)
Fig. S7 $^1$H-NMR spectra of (A) $\gamma$CD, (B) SP-COOH, (C) SP-COOH@$\gamma$CD.

Fig. S8 XRD profiles of SP-COOH@$\gamma$CD, SP-COOH/$\gamma$CD 1:1 mixture, $\gamma$CD, and SP-COOH.
Fig. S9 TGA curves for **SP-COOH, SP-COOH@γCD, SP-COOH/γCD mixture (1:1)** and γCD.

Fig. S10 SEM images of (A) pristine SP-COOH and (B) γCD.

Fig. S11 The film of pure SP-COOH (left), pure γCD (middle) and SP-COOH/γCD mixture (1:1) (right). (A) before UV irradiation, (B) after UV (365 nm) irradiation for three minutes.